THE CASE OF WILLETTA HUGGINS
J. S. Nagel
THE WILI TO BELIEVE
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colitis, and anorectal conditions such as dyschezia and spasm, whether idiopathic or secondary to local disease (fissure, ulcer, hemorrhoids). Any such obstruction to the fecal column, particularly when the effect is intermittent or recurrent, tends to throw back the contents to the head of the colon (exaggerated antiperistalsis), and thus brings on the usual sequence of hypertrophy and dilatation, with local irritation and subjective discomfort.

It is much to be desired that a wider recognition of this really common syndrome will lead to correct diagnosis and appropriate treatment, and so prevent not only the possible terminal stage of "perforating ulcers of the cecum," but also the injudicious and unhelpful removal of innumerable "chronically diseased appendixes" that do not exist in reality.

JOHN L. KANTOR, M.D., New York.

THE CASE OF WILLETTA HUGGINS

To the Editor:—I have no quarrel with Professor Jastrow, as I am neither a psychologist nor an oculist; but I presided at the meeting of the Chicago Medical Society when the case of Willetta Huggins was presented, and I believe that, in justice to the intelligence of the audience, those who read his article in THE JOURNAL of June 17 should know how the sight test was applied before the Chicago Medical Society.

A pair of ordinary dust goggles was used, and over each glass was placed a piece of dark paper, and then a heavy pad of cotton. I placed these over my own eyes first, and then over the eyes of Miss Huggins.

If this young lady read with a slit of vision as Professor Jastrow states when she performed the tests before our members, it is even more marvelous than his theory of the "will to believe."

J. S. NAGEL, M.D., Chicago.
President, Chicago Medical Society.

MEDICAL TERMINOLOGY IN GERMANY

To the Editor:—Peculiar results of the European war continue to crop up in unexpected—or at least unforeseen—places, from time to time. This is true not only in politics, geography and finance, but in art and science as well. In 1920, the Vereinigung der deutschen medizinischen Fachpresse designated a commission to collaborate with the Deutsche Gesellschaft für innere Medizin in selecting German terms which might replace French and English expressions that have been so long in use in medical literature as to have become in many instances a part of the medical language of all nations. The *Deutsche medizinische Wochenschrift* (**48**:493, 1922), the *Münchener medizinische Wochenschrift* (**69**:454, 1922) and other medical periodicals from Germany report the results of this collaboration and give the list of the French and English phrases to be interdicted and their German equivalents. Of these new terms, many successfully convey their exact meaning at a glance; others require a little thoughtful investigation, while still others are composed etymologically of elements so nontechnical that their medical meaning is not easily arrived at—unless, perhaps, by a person "born in (the) two languages"—French and German, or English and German. Taking into account German unity and the German habit of discipline, we may assure ourselves that this terminology will secure instantaneous and universal adoption at the hands of writers on professional themes in Germany, and that such old friends as "contrecoup" and "tic douloureux" will disappear henceforth from German medical literature. It thus becomes important that those who avail themselves of the German periodicals—and especially those engaged in bibliography and the work of classification—should have at hand the list (which is appended) of the new German expressions and their older French and English equivalents.

New Terms	Former Terms
Abwehrspannung	défense musculaire
äusserer Harnröhrenschnitt	boutonnière
Alopecia atrophicans	alopécie atrophiante
Binnenverletzung(des Kniegelenks)	dérangement interne
Docht	mèche
Drehtick	tic rotatoire
Einkerbung (des Bruchringes)	débridement
Florentiner Seide	fil de Florence
Gegenstoss	contrecoup
gemischter Schanker	chancre mixte
Geräusch des gesprungenen Topfes	bruit de pot fêlé
Geschlechtsverwechslung	erreur de sexe
gewaltsame Entbindung	accouchement forcé
gewaltsame Richtigstellung	redressement forcé
gewaltsames Beweglichmachen	brisement forcé
Glanzhaut	glossy skin
gleichsinnige Abweichung	déviation conjuguée
Herzbuckel	voussure
kleiner epileptischer Anfall	petit mal
Klopfbehandlung, Beklopfung	tapotement
knotige parenchymatöse Hepatitis	hépatite parenchymateuse nodulaire
Kolbenfinger	ostéoarthropathie hypertrophiante pneumatique
Kreishogenstellung	arc du cercle
Larva migrans	creeping disease
Malum perforans	mal perforant
Massen- (reposition)	en masse
moralischer Schwachsinn	moral insanity
Mückensehen	mouches volantes
Muskeltick	tic convulsif
Nachblassen der Haut	dermographic blanche
Panzerkrebs	cancer en cuirasse
Peyersche Haufen	Peyersche plaques
Pulsdruck	amplitude
Pulshöhe	altitude
Rückansteckung	choc en retour
Rücklaufkatheter	cathéter à double courant
Schleimhautpapeln	plaques muqueuses
Schmerztick	tic douloureux
Schwirren	frémissement
Sclerosis redux	chancre redux
Syphilis ohne Primäraffekt	syphilis d'emblée
Tickkrankheit	maladies des tics
unausgeprägte Basedowkrankheit	Basedow fruste
unausgeprägte Formen	formes frustes
unbewusst erworbene Syphilis, Syphilis insontium	syphilis ignorée
Vergleichsfarbe	teinte
Wandertrieb	Fugue-Zustände
warzenähnlicher Zustand	état mamelonné
Wasserkopfschrei	cri hydrencéphalique
Weissfleckenkrankheit, Leukoderma	white spots disease
zwanglose Behandlung	no restraint
Zwiemilchernährung	allaitement mixte
Zuckerstich	piqûre

A. N. TASKER, M.D., Washington, D. C.
Major, Medical Corps, U. S. Army;
Associate Editor, Index Medicus.

[COMMENT.—It remains to be seen whether language can be created by edict in the new Germany.—ED.]

"MEDICAL EDUCATION"

To the Editor:—I have just read (THE JOURNAL, June 3, p. 1743) certain reflections of a student relative to medical education. Now for some suggestions anent that topic from the practitioner's standpoint.

In my humble opinion (M.D., Columbia, 1904) too much study is required of a purely theoretical nature. The subjects of physiologic chemistry, materia medica, comparative anatomy, etc., while extremely interesting, have too many hours of the course devoted to them. Would it not be wiser to focus on twenty drugs and have a broad, indelible knowledge of these, rather than ramble along over all the pharmacopeia? One should learn twenty drugs thoroughly and well, and read up the other 999 as parallel.

What does the young graduate know of such topics as distribution of physicians in the United States; office equipment—how many rooms, where best to locate in a city or town, a roentgen-ray room, laboratory; bill collecting, how to go about it; how to collect difficult bills; office nurse; relation-

Correspondence

PROPHYLAXIS OF VENEREAL DISEASE

To the Editor:—I have read with interest the communication on this subject by Dr. Herman Goodman, THE JOURNAL, June 24. He says, among other things, "The more prophylactics administered, that is, the more admitted exposures, the greater the incidence of venereal disease. On the other hand, when opportunity for prophylaxis was reduced by curtailment of opportunity of exposures, the incidence of venereal disease became practically nil." This statement is followed by two imposing tables of statistics. One can scarcely but suspect that the author has a subconscious bias against prophylaxis, perhaps for the same reason that the late Secretary of the Navy disapproved of it—that it licensed license. The sense of the letter would appear to be that if men are prevented from indulging in intercourse they are not likely to contract venereal disease, a conclusion with which all must agree. If one needed statistics to back this up the medical authorities of Sing Sing prison could furnish them.

The reason that I call your attention to this matter is that I had not supposed that the American Medical Association was interested in the reduction of disease rate by the exercise of police power on the individual. Conceding the fact that abstinence from sexual intercourse is a sure preventive of venereal disease, it appears to me that the enforcement of that abstinence lies in the province of individual morality rather than in that of preventive medicine.

ARMITAGE WHITMAN, M.D., New York.

"THE WILL TO BELIEVE"

To the Editor:—I have received a number of letters approving the position I have taken with regard to the performances of Willetta Huggins, and others expressing, somewhat after the manner of the communications of Dr. Babcock and of Dr. Nagel in THE JOURNAL, June 24 and ~~31~~, some reservations and a good deal of skepticism that sight sufficient to recognize colors should be possible despite a blindfold. With some acquaintance with the blindfold performances on the stage, I can say that the "goggles" type of blindfold used in Chicago would be regarded as one of the "easiest"—that is, easiest to circumvent. Sealing the eyelids with *opaque* court plaster, as suggested by Dr. Babcock, would be completely effective, as would also be a number of other devices known to those who have given attention to the subject; and the tests in a completely dark room would also be made decisive. Dr. Babcock is entirely correct in citing examples of the unusual and expert use of senses by the blind and deaf; and I know of a number of instances more remarkable than those he cites. But these cases do not function after the manner shown by Miss Huggins. The question of excluding hearing is by no means so simple. The experience of submarine detectors during the war seemed to show that nothing less than a device similar to a diver's helmet would answer. Only an expert would be competent to determine just how far sound was excluded; though it is open to any one with normal hearing to apply a sound-excluding device and determine just how much he can hear and understand with it or despite it.

There is no occasion to add anything in reply to Mr. Hooper's public comment on the conclusions which I presented (New York *World*, June 17), and presented not as final but as a caution against the gratuitous hypothesis that the performance demands the assumption of "smelling" colors or "understanding" vibrations through the fingers; though it may be pertinent to indicate the apologetics which are needed to defend this strange conclusion. To account for the failure, it is urged that the dark room at Madison was full of chemical odors which prevented the "smelling" of colors. It did not prevent the "smelling" (?) of colors when a low light was on in the same smelly room, but only when that light was extinguished.

Like Dr. Babcock, I am interested in having the matter determined beyond any doubt. For this end I have prepared a set of tests which I should be glad to have any competent person apply in a wholly objective manner and unembarrassed by the presence of any advocate who believes that the performance requires a resort to extraordinary assumptions, or by the presence of a skeptic like myself who—as in the case of mediums, who also claim unusual senses—is regarded as emanating unfavorable vibrations interfering with the exercise of the sense in question. As I indicated in my article in THE JOURNAL, June 17, the psychologic laboratory has adequate methods and technic to bring the matter to a definite conclusion. All that is needed is the cooperation of the subject and the determination of the conditions of the test by competent experimentalists. I trust that this will be done in the near future. Let it be understood that all depends on the technic and rigidity of the tests.

JOSEPH JASTROW, Madison, Wis.

METHOD FOR UTILIZING ETHYL CHLORID IN LOCAL ANALGESIA

To the Editor:—I wish to call attention to a simple but effective method of applying the ethyl chlorid spray for local analgesia. I have used this method for the last four years in opening localized infections and in the fulguration of warty growths. The reason that the freezing method as universally used is not effective is that the tissues are so hard that pressure enough to cause pain must be applied before the sharpest knife will cut through the frozen tissues. The method I suggest is to apply the spray so as to form a circle around the area to be incised or fulgurated, care being taken to keep the spray away from the center. The width of the frozen area should be at least half an inch, and there should be at least 1 inch of unfrozen area in the center of the circle. Blowing the breath on the freezing surface will be found to accentuate the freezing. As soon as a white crust forms *all the way around*, the incision should be made or the spark applied, immediately. There will be very little if any pain, as this is essentially a nerve-blocking anesthesia.

RAYMOND L. BRADLEY, M.D., Houston, Texas.

Queries and Minor Notes

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TREATMENT OF CHEILITIS

To the Editor:—I have a patient who suffers from peeling every summer, owing, I think, to the effects of the sun, as he is in the open all day. The part of the lip affected is the mucous surface just posterior to the mucocutaneous junction. I have tried everything I could think of without much benefit. This trouble persists until cool weather, and then subsides until the next summer. Anything you might be able to suggest in the line of treatment would be appreciated. The patient cannot protect himself from the sun. He has to work in the open. Please do not publish my name.

PHYSICIAN.

ANSWER.—There are patients who have inflammatory reaction in the lips, cheilitis, from exposure to the sunlight. It is difficult or impossible to overcome if exposure of the lips cannot be avoided, as is usually the case. The use on the lips of a thick paste, made skin color with zinc oxid and calamine (or "crocus martis") as coloring, would offer pro-

The story of venereal disease prophylaxis in these communities is too long for retelling here. Some of the salient features may be learned by reviewing:

Goodman, Herman: Genital Defects and Venereal Diseases Among Porto Rican Draft Troops, THE JOURNAL, March 29, 1919, p. 907; Prostitution and Community Syphilis, *Am. J. Pub. Health* **9**: 515 (July) 1919; Prostitute in Jail, *Med. Rec.* **97**: 483 (March 20) 1920; Law Enforcement Reduces Venereal Disease Incidence, *Soc. Hyg. Bull.*, May, 1920, p. 7; Regulation vs. Abolition of Prostitution, *Med.-Legal J.* **37**:52, 73, 1920; Regulation vs. Suppression of Prostitution, *Western Med. Times* **40**: 270, 1921.
Report of the Governor of Porto Rico to the Secretary of War, 1919.
Notes and Comments, Social Hygiene **5**: 259 (April), 399 (July) 1919.

Conditions differ in various parts of the world, yet one could not ask for a more difficult place to demonstrate venereal prophylaxis by reduction of exposures than in a brigade of native troops in the tropics, as was done in Porto Rico, or among Americans in Panama.

HERMAN GOODMAN, M.B., New York.

THE CASE OF WILLETTA HUGGINS

To the Editor:—In THE JOURNAL, June 17, appeared an account of the remarkable sense-perceptions shown by Willetta Huggins before the Chicago Medical Society. This report is followed by Professor Jastrow's comment on the exhibition of the girl's astounding and to him incredible power of smell and touch. It is his comment that prompts this letter.

I have known of some remarkable feats in the way of touch and smell displayed by persons whose absolute blindness was beyond question. For instance, in the Philadelphia School for the Blind where I was a pupil in my boyhood was a girl born without sight whose delicacy of touch was such that she was able to read with ease through four thicknesses of a muslin handkerchief the books of raised letters ordinarily used by sightless persons. In the Perkins School for the Blind in Boston I believe was at one time a young woman (her name I do not recall) who was said to be able by the sense of smell alone to assort correctly the laundered clothes of the children of the institution.

Those are instances of such unusual development of special senses that it makes it not very difficult to accredit to Miss Huggins special powers of sense-perception without, as intimated by Professor Jastrow, the "will to believe." Indeed, so far am I from being willingly credulous as regards all that Willetta does, that I cannot but believe she must see and hear slightly. In fact, I so expressed myself in a letter to Mr. Hooper, superintendent of the Janesville School, last autumn.

In his reply he stated that he and others had subjected her to tests that seemed to prove beyond question her total deafness and blindness. Nevertheless, I am so staggered by her seeming ability to read what is said by the vibrations imparted to a pole resting on the head of the speaker that I still question whether she cannot hear to a limited degree.

There is nothing impossible in Willetta's ability to understand words by resting her hand on the top of the speaker's head or on the chest. I am staggered again by her seeming ability to detect by smell the various colors in skeins of wool or silk, and still more by her recognition in the same way of the colors of natural flowers all of the same kind. Therefore, to set this whole matter at rest, I hope Mr. Hooper will see fit to shut out all possibility of light by sealing the eyelids by means of court plaster and of excluding all sounds by plugging the girl's ears with some substance, as putty or chewing-gum, and finally test the pole experiment by having some nonconductor, as glass, placed between the skull and the end of the stick.

In conclusion, let me say I am still of an open mind and only desire to have this question settled beyond the peradventure of a doubt.

ROBERT H. BABCOCK, M.D., LL.D., Chicago.

Queries and Minor Notes

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PENETRATION OF ROENTGEN RAY

To the Editor:—The theory of the roentgen ray as to distance is accepted as light: that it has a penetration in proportion to the square of the distance inversely. For example, 5 inches from the tube, $5 \times 5 = 25$; 7 inches from tube would be $7 \times 7 = 49$, or about one-half of the penetration; or you would say the same of feet in place of inches: 5 feet twice as strong as 7 feet. I do not believe that this is true at these different distances. The three rays given off the roentgen ray—alpha, beta and gamma—all have different velocity and penetration and are very unlike light in many ways. They cannot be refracted or deflected from a straight line, and they have many other properties unlike light. I would be glad to have expert view on this subject.

PAUL PENISTON, M.D., Newnan, Ga.

ANSWER.—The "inverse square of the distance" law has no reference to penetration by the roentgen ray. It simply refers to the intensity at different distances from a given roentgen-ray tube in operation. This intensity varies inversely as the square of the distance in spite of the fact that the beam of the roentgen ray is made up of a number of different qualities of roentgen ray, these variations in quality depending on the variations in wave length.

The beam of light from an ordinary lamp is also made up of various qualities of light, depending on the wave length; i. e., in the beam there is light of various colors from the red to the violet ends of the spectrum. However, disregarding the very small absorption in air, the intensity of light on any given surface falls off inversely as the square of the distance from the source of the light to that surface. Exactly the same thing is true of the roentgen ray. Disregarding the small amount of absorption in air, roentgen-ray intensity (not penetration) will fall off inversely as the square of the distance from the source.

There seems to be a misunderstanding in one part of our correspondent's letter in which he states that alpha, beta and gamma rays are given off by a roentgen-ray tube. Radium gives off these three kinds of rays. Alpha rays are ejected particles of gas; beta rays are electrons; gamma rays are electromagnetic waves.

Only the electromagnetic waves are given off from a roentgen-ray tube; i. e., only rays similar to gamma rays. It is probably misleading, however, to call them gamma rays, because they are very different in wave length and consequently in quality and penetration from the very short wave lengths given off by radium. The correspondent has been misled fundamentally by confusing intensity with penetration. Intensity refers to the amount of roentgen ray, and penetration to the quality.

SPINAL SUBARACHNOID BLOCK

To the Editor:—What is the cause of spinal subarachnoid block in spinal meningitis? I have wondered whether opisthotonos were not responsible, but can find no literature on the subject.

G. T. SPENCER, M.D., South Bend, Texas.

ANSWER.—By "spinal subarachnoid block" a condition is meant in which the flow of cerebrospinal fluid is interrupted by an obstruction in the spinal canal, the usual cause of which is meningitic exudates or a spinal cord tumor. The condition has become well known since the method of suboccipital puncture into the cisterna magna has come into vogue. The patient is made to lie horizontally on one side, and needles are inserted into the cisterna and the lumbar sac at the same time and manometric readings are made. Normally the pressure is the same, while in "block" the cistern pressure is higher. Furthermore, the appearance and the chemical and cytologic condition of the two samples of fluid may vary greatly. Thus, in a case of meningitis with the "block" in the cervical or thoracic region, a small amount of clear or nearly clear fluid under low pressure and with a low cell count might be secured by lumbar puncture, while the cisterna fluid might be purulent and under high pressure. Another form of "block" occurring in meningitis is the "ventricular block" caused by closure by inflammatory exudate of the foramina of Magendie and Luschka by which the ventricles communicate with the subarachnoid space. In this case both the cisterna magna and the spinal subarachnoid space are distal to the obstruction. In order to demonstrate the different pressure and character of the fluid above and below the obstruction and to relieve the serious pressure

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itutional symptoms, although there was a local reaction, nd in one instance a small slough.

The report was then made and the clinical side of the case equested, which Dr. Halton kindly furnished.

CLINICAL FEATURES

A woman, aged 54, schoolteacher from New York, began owing in November, 1919, and had intermittent periods of leeding, which were treated chiefly by ovarian extracts for even months. A diagnostic curettage, Feb. 1, 1922, led to a iagnosis of adenocarcinoma from the scraping. February 7, a hysterectomy was performed at a hospital in a nearby ity. When the wall was closed, four strands of silkworm ut were left in the lower end of the incision for drainage. Recovery was uneventful. Drainage left a hole about the ize of a silver dollar. The patient left the hospital about our weeks after the operation, Dr. Halton seeing her the vening before she left.

Four days later he was called to her home and found a nasty hole in the abdomen covered with white membranes," vhich looked to him to be diphtheritic. Examination of the hroat disclosed a membrane on the right tonsil. He immediately had the patient removed to his hospital, took swabs, nd without waiting for reply gave 10,000 units of antitoxin, epeating the dosage during the next two days. "The result vas like magic. The membranes disappeared and the infected ole healed rapidly."

Special Article

"THE WILL TO BELIEVE"

JOSEPH JASTROW
Professor of Psychology, University of Wisconsin
MADISON, WIS.

Extraordinary Development of Tactile and Olfactory Senses Compensatory for the Loss of Sight and Hearing

Dr. T. J. Williams reported the case of Willetta Huggins, 17 years of age, blind and deaf, an inmate of the Wisconsin School for the Blind, and exhibited the patient. Miss Huggins gave some remarkable demonstrations in naming colors by the sense of smell. For instance, a skein of wool composed of different colors was handed to her and she named the colors correctly by passing the skein of wool before her nose as dark blue, yellow, pink, green, blue, fiery red, brown and white.

A bunch of paper flowers (colored) was handed to her and she named the colors correctly as white, yellow, pink, lavender, purple, red, tomato red, and yellow. She was handed a small blotter used by the official stenographer, one side of which had a pink color, and the other side was white, with a blue border. Miss Huggins named correctly the colors on this blotter. One end of a wooden pole, about 12 feet long, was placed on top of Dr. Robert H. Babcock's head, while Miss Huggins took hold of the other end, and repeated every word Dr. Babcock said to her correctly. By the sense of touch she told the denominations on a one dollar bill, a ten dollar bill, a twenty dollar bill, and a one hundred dollar bill correctly.

Dr. Robert H. Babcock said he knew of the case of a boy in Philadelphia, totally blind, who, if led along a path, four feet distant from trees, could count every tree he passed. He said that blind people develop a peculiar facial sensation which enables them to tell when they approach an object, whether it was a human being or anything else.—*Official Bulletin of the Chicago Medical Society* **21**:29 (June 3) 1922.

[NOTE.—Because of the interest aroused by this case when it was presented before the Chicago Medical Society, and knowing that Professor Jastrow had had opportunity to examine the patient, THE JOURNAL asked him to comment on the demonstration.—ED.]

THE CASE OF WILLETTA HUGGINS

The demonstration before the Chicago Medical Society of a young girl presumed to present unusual types of sense perception, and the impression made upon men of the medical profession that there was solid ground for such conclusions, justify the present statement. The claim was put forward that this girl is able to tell colors by the sense of smell and is further able to understand spoken language, provided there is a connection between her fingers and the head or larynx of the speaker, either directly or through the medium of a wooden rod. This claim means that she possesses so acute a vibratory sense through tactile organs as to distinguish the very minute differences in vibration involved in the distinction of spoken sounds. Additional performances urged the further claim that she could read with her fingers large headlines in newspaper print.

THE WILL TO BELIEVE

Cases of this kind belong to a well recognized group of phenomena known to recent generations and even in part to ancient times. The reason why such claims find ready acceptance among critical and even psychologically trained individuals lies in the prepossession in favor of such beliefs. It is, in brief, one more example of "the will to believe." Against this popular prepossession, it may be stated emphatically that psychology has been unable to recognize the existence of such powers. Furthermore, it is extremely difficult to explain on biologic principles how capacities of this kind could be carried forward in the evolutionary processes and remain dormant except under unusual conditions. The present case involves also the further idea that those deprived of the use of one sense find compensation in the development of another. In terms of refined training and minute attention to sense indications that would ordinarily be overlooked, the last statement is endorsed by psychology. Toward the existence of such senses as Miss Huggins maintains, the attitude of psychologists is just as negative as for the general claim of unusual senses, such as "smelling" colors.

Such claims are connected in the remote and the near history with the ability to read the mind or thoughts of others, and with the possession of powers of access to personal details that could not come through the ordinary channels of sense. The best recognized instances of this order are generally described as telepathic, or clairvoyant, without definite reference to the type of sense impression by which such information is conveyed. Still more popularly are such persons spoken of as being "psychic." Such claims equally remain unrecognized by psychologists. In this instance I can speak by the right of statistics, for only from 3 to 5 per cent. of the psychologists to whom I addressed a circular were inclined to give a limited adherence to such an hypothesis. The 95 per cent. or more were decidedly against such a supposition Strictly speaking, to say that a mind is "psychic" has about as much meaning as to say that one's body is anatomic. Unquestionably we have not exhausted the range of sense perception, nor have we penetrated all the mysteries of communication of mind to mind. But with the most generous allowance for such possibilities, it still is the duty of psychologists to oppose vigorously the popular notions through which the ready acceptance of stories of unusual senses results.

THE EVIDENTIAL STAGE

The next stage of the inquiry is the evidential one. Miss Huggins goes through some tests which are interpreted to mean that she possesses unusual senses. Such tests require minute technical examination. The history of this, as of other cases, shows most clearly that everything depends on the absolute rigidity of the tests, leaving no loophole for a resort to supernormal hypotheses by a hasty conclusion that ordinary senses are insufficient to account for what is done. So interested are people at large in the possibilities of rare performances of sense powers or thought transference that such exhibitions have become a recognized part of the performance of the vaudeville stage. That craft which is repre-

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sented by the Society of American Magicians furnishes most interesting proof of the possibilities of intentional and clever deception. There are any number of "mind-reading" performances that would baffle even the power of a well informed amateur to fathom the procedure. Naturally, these performers are frequently willing to be accredited with supernatural powers; but the more recent books that expose the mode of operation offer an amazing proof of the extreme ingenuity which has been expended on the creation of such mysteries. If we had the same tendency to credit stage performers with unusual senses as we have to ascribe them to the blind and deaf, we should find as strong evidence for the conclusion in their case as in the case of Willetta Huggins. On the other hand, the medical interest is centered upon the other side of the problem of deception, and in a measure so also is the psychologic interest. This begins with the hysterical type of self-deception and expands to all sorts of mixtures of belief and half belief, and a consent to believe quite akin to a delusion.

RECOGNITION OF COLORS THROUGH A REMNANT OF VISION

With this background of consideration, we approach the case of Willetta Huggins with the decks clear for the simplification of the problem. In all such cases, as in the tricks of the stage, it is the first step that counts. The same holds true of the investigations of "psychic" mysteries. The uncritical observer rushes to the conclusion that fraud has been excluded, and in the present case we may readily consent that the possibilities of any intentional deception in the usual sense may be dismissed. The reason why Miss Huggins is accredited with these unusual senses is through the conviction that her sight and hearing are useless. My own opportunity to examine Miss Huggins was limited, but was entirely sufficient to convince me that vision of colors was due to the remnant of sight which she retains. In bringing objects to her nose as if to smell them, she has them near enough to her eyes to see them through the slit of vision that she has. I base this conclusion not only on the extreme rapidity with which she recognized such objects, but on a variety of confirming tests. In the first place, the possibility of smelling colors meets the consideration that the dye used is very different for wool, silk or cotton, and that such minute differences are entirely beyond the sense of smell. There is an early observation that the girl distinguished between zinnias that were white and those that were striped red and white, a distinction far beyond the possibility of olfactory sources but very easy to vision. Moreover, her recognition with the blindfold indicated that she sees under the blindfold as do so many performers. A professional "mind-reader" called on me and showed me how, with the most careful blindfold, he is still able to play billiards and whist, by looking down beneath the blindfold. He admitted that he always ran the danger of meeting some one who knew how to apply a blindfold, in which case he could do nothing. In the case of Willetta Huggins, when a blindfold was applied closely under her eyes she was totally unable to distinguish colors. Another method was to test her in a completely dark room. The notes before me show that Miss Huggins, when tested in the dark room while an ordinary light was on, sorted colors quite correctly though slowly; but with the light extinguished she was unable to do anything at all. I do not indicate that these tests are absolutely conclusive, but cite them to show where the presumption lies. Of course, in every practical sense this girl is blind and has no central vision whatever; but the possibility of a slit-wise vision is by no means excluded.

HYSTERICAL DEAFNESS

When we come to the matter of hearing, the situation is far more complicated; medical men know as well as psychologists how difficult it is to muffle the sense of hearing. But they also know that there is an enormous difference between enough hearing to detect the *presence* of sounds and even to make coarse distinctions, and the very difficult recognition of sounds in order to *understand the meaning.* We all know that the telephone, however serviceable when we are speaking a familiar language, completely fails in the matter of proper names which are unfamiliar and unusual. Usually these have to be spelled out in order that one may understand them correctly. The further fact, that it is almost impossible to eliminate sound by any muffling device and that a very low sound clearly enunciated carries complete meaning, will clarify the problem. The very supposition that vibrations so minute as these could be carried through the finger tips taxes one's credulity. I prepared a pair of mufflers by means of modeling wax and sand bags in order to determine whether the reduction of the intensity of the sound would affect the girl's understanding. I found that it did not, from which fact those who would favor the hypothesis of a vibrational sense, instantly concluded that hearing was excluded by this evidence. But with my ears muffled in the same way, I was able to hear words from 8 to 12 feet distant and spoken in a tone of voice hardly above a whisper.

Those acquainted with the phenomena of hysterical deafness will realize how difficult it is to determine the actual status of this sense. It would take far more careful experiments than have yet been made to decide whether this is a case of hysterical deception, or whether other factors are involved. This would mean that the girl deceives herself in the belief that the vibrations conveyed through her finger tips make her hear the sounds which really reach her through auditory channels. But the psychologic laboratory possesses a technic sufficient to determine the matter, if the subject is willing to conform to the tests. There is also the fact that when, unknown to the subject, the rod that is regarded as essential to carry the vibrations was actually not in contact with the speaker's head, she replied to questions quite as well as though the contact had been established.

NATURE OF THIS PERFORMANCE

The purpose of the present statement is to place medical men on their guard in accepting conclusions of this order, and to call their attention to the technical requirements of a really rigid test. I have the further purpose of indicating emphatically that the tendency to believe in such powers is primarily responsible for the neglect of such technical considerations. Once it is assumed that fraud is excluded, naturally the "telepathic" and supernormal hypotheses are credited.

Similarly, when it is concluded on insufficient evidence that this girl has no sight or hearing left, the performance is credited to the existence of unusual senses. Such conclusions take their form from prevalent beliefs. It is interesting to go back nearly a hundred years when a boy in Nuremberg, Kaspar Hauser, was supposed to have unusual senses, particularly the sense of magnetism. He felt the presence of metals, and to pass a hardware shop might bring on a convulsion. We know of the hypnotic clinics in Paris early in the nineteenth century where there were a group of subjects who could hear only when contact was made with the abdomen; another group professed to see through a mysterious sense that would today perhaps be described as a human roentgen ray penetrating opaque objects. Just as soon as the tendency to believe in these hypotheses fell away, the performances ceased. In many cases these were due to hysterical self-deception. Surely the lessons of the past are sufficient to indicate that this performance is of a similar origin and nature.

MOTIVE

Without in any sense closing the case I believe it important to bring these considerations to the attention of physicians, whose verdict will naturally be of large importance in such cases. The question of motive in such performances is a delicate one. We all know that the dramatic interest sustains them and that this readily reaches the sensational level. The journalistic sense delights in tales of this kind and gives them wide circulation, while the negative or critical opinion is likely to be received as an example of undue skepticism. I shall not attempt to diagnose these factors in the present case. I shall, however, cite from a letter of a blind girl who, despite her handicap, has made her way through college and who writes:

> I am sure that there are very few blind people who think that they are the possessors of any unusual powers whatever; though I do know a great many sighted persons who cherish this delusion; and as there are among the blind as among the sighted a certain proportion whose intelligence and self-control is not of the highest, it is not altogether surprising that when their sighted friends hold these fancies to be true that these, at least some of these, highly suggestible blind persons should become victims, more or less, themselves of the same prepossessions.

The awkward question cannot be avoided as to whether intentional deception encroaches upon the self-deception on the part of the performer in this instance. As Janet has so well shown, the boundary line between deception and self-deception is so uncertain that one may use the veil of charity and make it cover whatever faults it may. That, however, there must be a point in connection with these performances in which the uncertain boundary line is readily passed, will be obvious to all. There is enough evidence of a hysterical disposition to make it certain that the verdict in this case cannot be readily reached. My purpose will be accomplished if this statement is accepted as a warning and an appeal to the medical profession to view such cases in the light of the well-known facts of psychology and the history of similar cases in the past.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

NEUTRAL ACRIFLAVINE-HEYL.—Acriflavina Neutra.—The base, 3:6 diamino-10 methylchloracridine, $C_{14}H_{14}N_3Cl + H_2O$, containing about 1.5 per cent. of sodium chloride as a stabilizer.

Actions, Uses and Dosage.—Neutral acriflavine-Heyl has the actions and uses of acriflavine (See Acriflavine and Proflavine, New and Nonofficial Remedies, 1922, p. 25), but being neutral in reaction is claimed not to have the smarting and irritating effect of acriflavine solutions.

Manufactured by The National Aniline and Chemical Co., New York, under U. S. patent 1,005,176 (Oct. 10, 1911; expires 1928) by license of the Chemical Foundation, Inc. No U. S. trademark.

Tablets Neutral Acriflavine-Heyl 0.1 Gm. (*1½ grains*).

Neutral Acriflavine-Heyl Throat Tablets: Each contains neutral acriflavine-Heyl 0.006 Gm., menthol 0.0006 Gm. and sodium chloride 0.0006 Gm.

Neutral Acriflavine-Heyl "Pro Injectione" 0.5 Gm. vials.

Neutral Acriflavine-Heyl "Pro Injectione" 1.0 Gm. vials.

Neutral Acriflavine-Heyl is a brownish-red, odorless, granular powder. It is soluble in less than 2 parts of water, forming a brownish-red solution which fluoresces on dilution and which has a bitter taste; also soluble in alcohol and ether, chloroform and the fixed and volatile oils.

An aqueous solution of neutral acriflavine-Heyl (1:100) is neutral to congo paper.

Neutral acriflavine melts at not below 90 C.

Add a few drops of hydrochloric acid to an aqueous solution of neutral acriflavine which is sufficiently dilute to be fluorescent. The fluorescence disappears, but partially reappears on further dilution with water.

Add 2 drops of sulphuric acid to about 1 Cc. of an aqueous solution of neutral acriflavine-Heyl (1:250) and agitate the mixture. No precipitate is produced (*distinction from acriflavine*).

To 10 Cc. of an aqueous solution of neutral acriflavine-Heyl (1:1,000) add 5 Cc. of diluted sulphuric acid, mix well and immerse in a bath of cracked ice. The deep red solution becomes dim, but no crystalline precipitate forms and the solution does not become colorless or nearly so (*distinction from acriflavine*).

An aqueous solution of neutral acriflavine-Heyl (1:250) gives a precipitate with silver nitrate solution (*distinction from proflavine*).

An aqueous solution of neutral acriflavine-Heyl (1:250) does not give a precipitate with barium chloride solution (*distinction from proflavine*).

An aqueous solution of neutral acriflavine-Heyl (1:250) does not give a precipitate with formaldehyde solution (*distinction from proflavine, which gives a brown precipitate*).

Add 2 drops of diluted hydrochloric acid to 5 Cc. of an aqueous solution of neutral acriflavine-Heyl (1:250) and immediately add 2 drops of sodium nitrite solution (1:10). A violet color is produced. By the further addition of an excess of sodium nitrite solution, a violet precipitate is formed and, after a few minutes, the color of the solution becomes cherry-red. This may be best observed after filtration (*distinction from proflavine, the filtrate from which is colorless*).

An aqueous solution of neutral acriflavine-Heyl (1:250) gives an orange precipitate with sodium hydroxide test solution (*distinction from proflavine, which gives a yellow precipitate*).

Incinerate at a low temperature about 1 Gm. of neutral acriflavine-Heyl, accurately weighed. The ash amounts to not more than 2.5 per cent. About 60 per cent. of the ash is sodium chloride.

Dissolve about 1 Gm. of neutral acriflavine-Heyl, accurately weighed, in 250 Cc. of warm water, collect the insoluble matter, if any, in a weighed Gooch crucible, wash the insoluble matter with hot water, dry and weigh the residue. The insoluble matter amounts to not more than 0.5 per cent.

Dry about 1 Gm. of neutral acriflavine-Heyl, accurately weighed, to constant weight at 100 C. The substance loses not more than 10 per cent. of its weight.

LUMINAL (See New and Nonofficial Remedies, 1922, p. 60).

The following dosage form has been accepted:

Luminal Tablets ¼ grain.

PROCAINE (See New and Nonofficial Remedies, 1922, p. 35).

Ven Sterile Solution Procaine 0.5 per cent.: Each ampule contains 1 Cc. of a 0.5 per cent. solution of procaine-N. N. R. Prepared by the Intra Products Co., Denver.

Ven Sterile Solution Procaine 2 per cent.: Each ampule contains 2 Cc. of a 2 per cent. solution of procaine-N. N. R. Prepared by the Intra Products Co., Denver.

Ven Sterile Solution Procaine 5 per cent.: Each ampule contains 5 Cc. of a 5 per cent. solution of procaine-N. N. R. Prepared by the Intra Products Co., Denver.

DIPHTHERIA ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1922, p. 280).

Parke, Davis & Company, Detroit.

Diphtheria Antitoxin (Concentrated Antidiphtheric Serum Globulin).—Marketed in piston syringe containers, containing, respectively, 1,000, 3,000, 5,000, 10,000 and 20,000 units.

TETANUS ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1922, p. 281).

Parke, Davis & Company, Detroit.

Antitetanic Serum (see New and Nonofficial Remedies, 1922, p. 282). Also marketed in piston syringe containers, containing, respectively, 3,000, 5,000 and 10,000 units.

ANTIGONOCOCCUS SERUM (See New and Nonofficial Remedies, 1922, p. 285).

Parke, Davis & Company, Detroit.

Antigonococcic Serum (see New and Nonofficial Remedies, 1922, p. 285). Also marketed in bulbs, containing 12 Cc.

ANTISTREPTOCOCCUS SERUM (See New and Nonofficial Remedies, 1922, p. 288).

Parke, Davis & Company, Detroit.

Antistreptococcic Serum (see New and Nonofficial Remedies, 1922, p. 289). Also marketed in piston syringe containers, containing, respectively, 20 Cc. and 50 Cc.

General Practitioner Is Keystone of Preventive Medicine.—Preventive medicine has been eloquently preached during recent years, but nearly always as something in the abstract. But until the great force hitherto little used in this direction namely, the general practitioner of medicine, is made use of, we will fail to make the progress that we ought to make with preventive medicine in the concrete, for he, of all others, is the individual who enters into close relationship with people. —Sir Napier Burnett, *Nation's Health* **4**:192 (April) 1922.

HV1792 The case of Willetta C.1
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